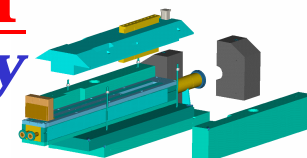
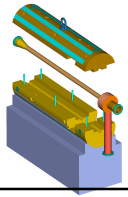


**US LHC ACCELERATOR PROJECT**  
***brookhaven - fermilab - berkeley***

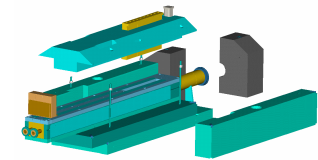


# Neutral Beam Absorber for LHC (TAN) ASSEMBLY

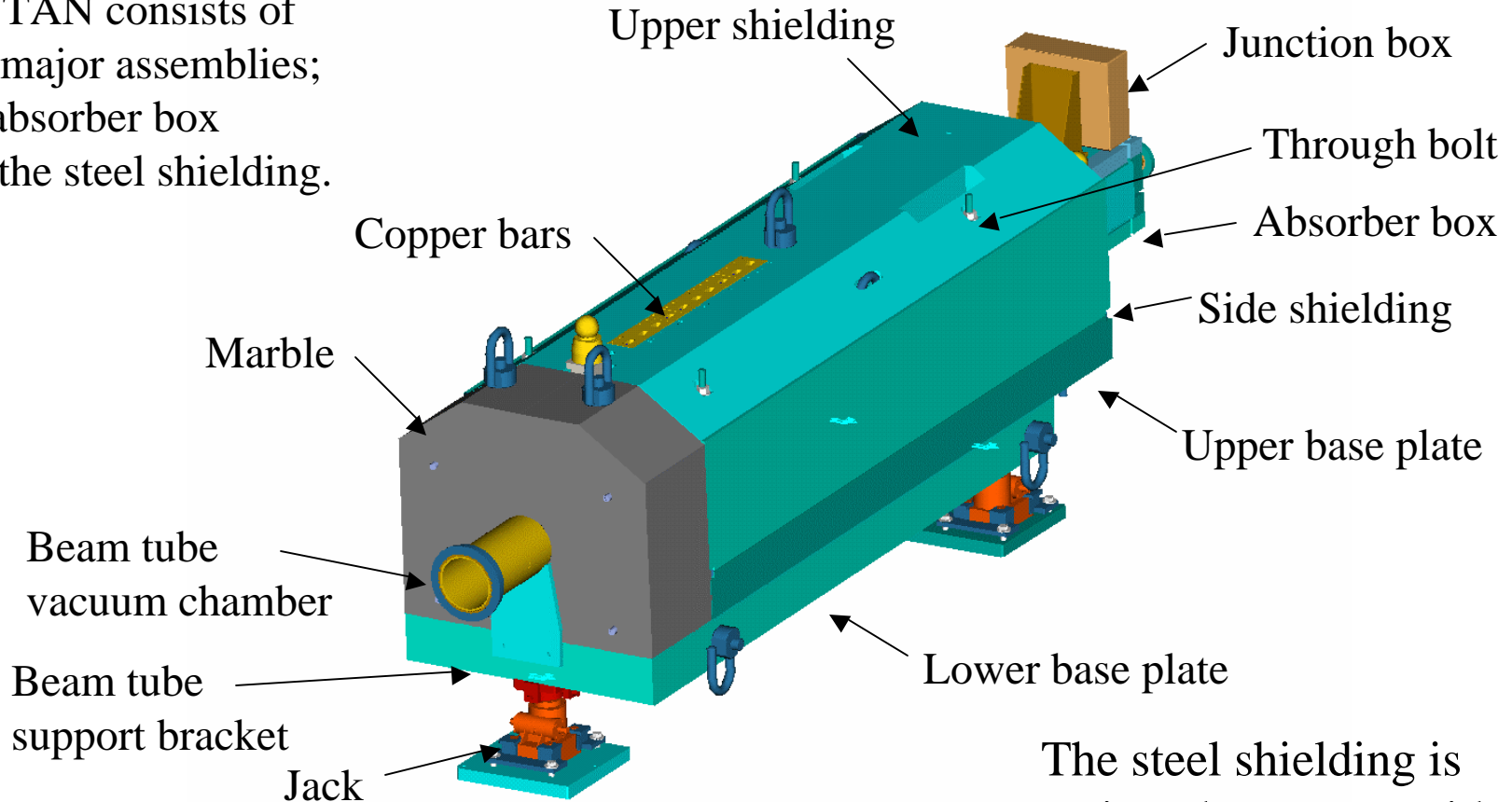
B. Elliott



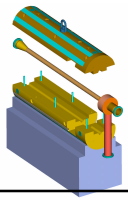
# TAN Nomenclature



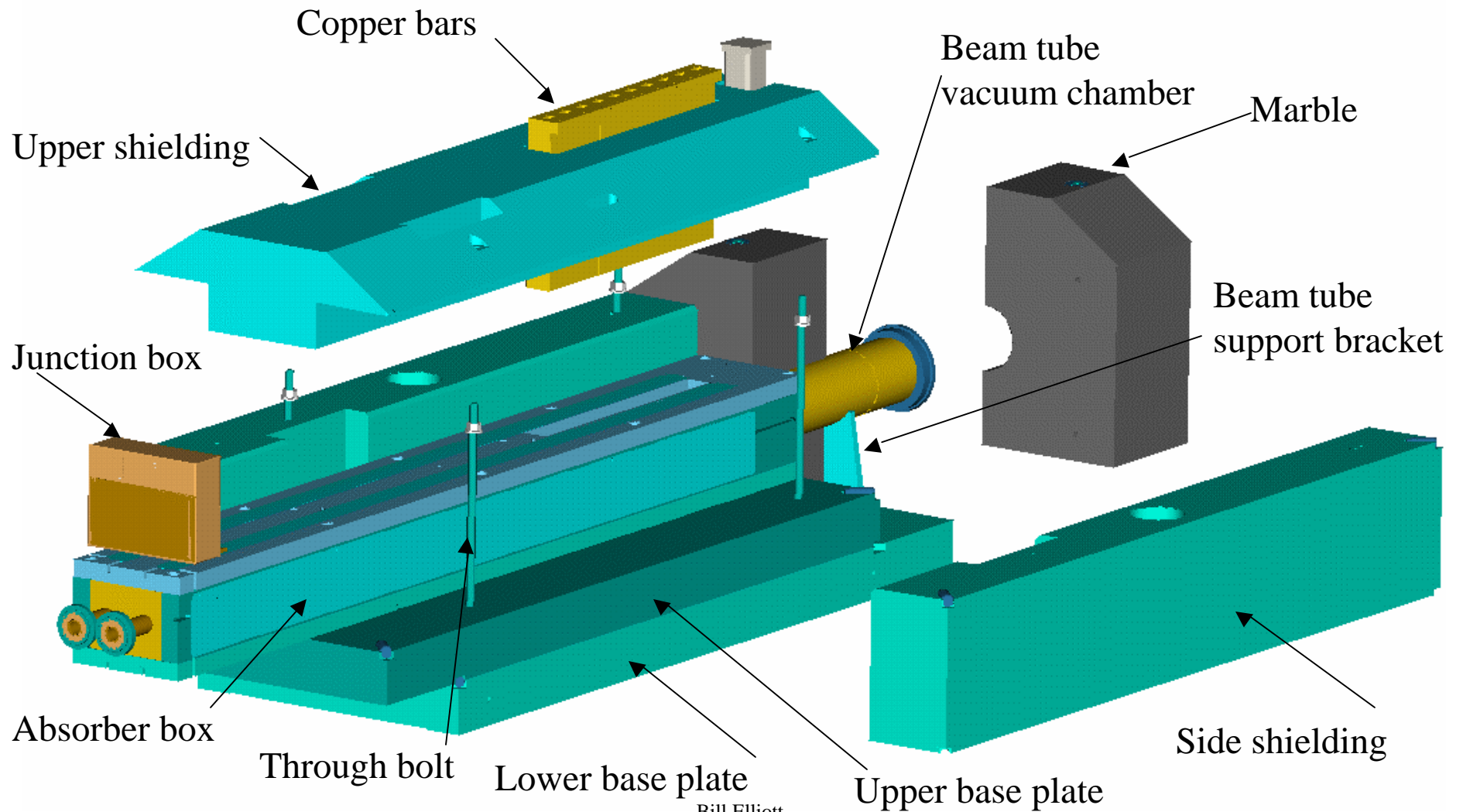
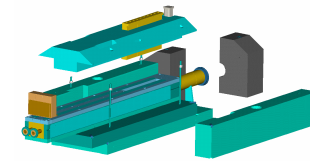
The TAN consists of two major assemblies; the absorber box and the steel shielding.



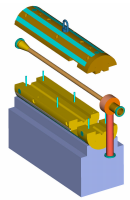
The steel shielding is a pinned structure with four through bolts for transport.



# TAN Nomenclature

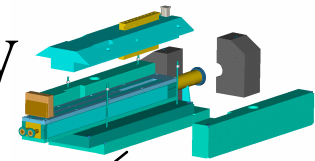


Bill Elliott  
TAN/TAS ASSEMBLY



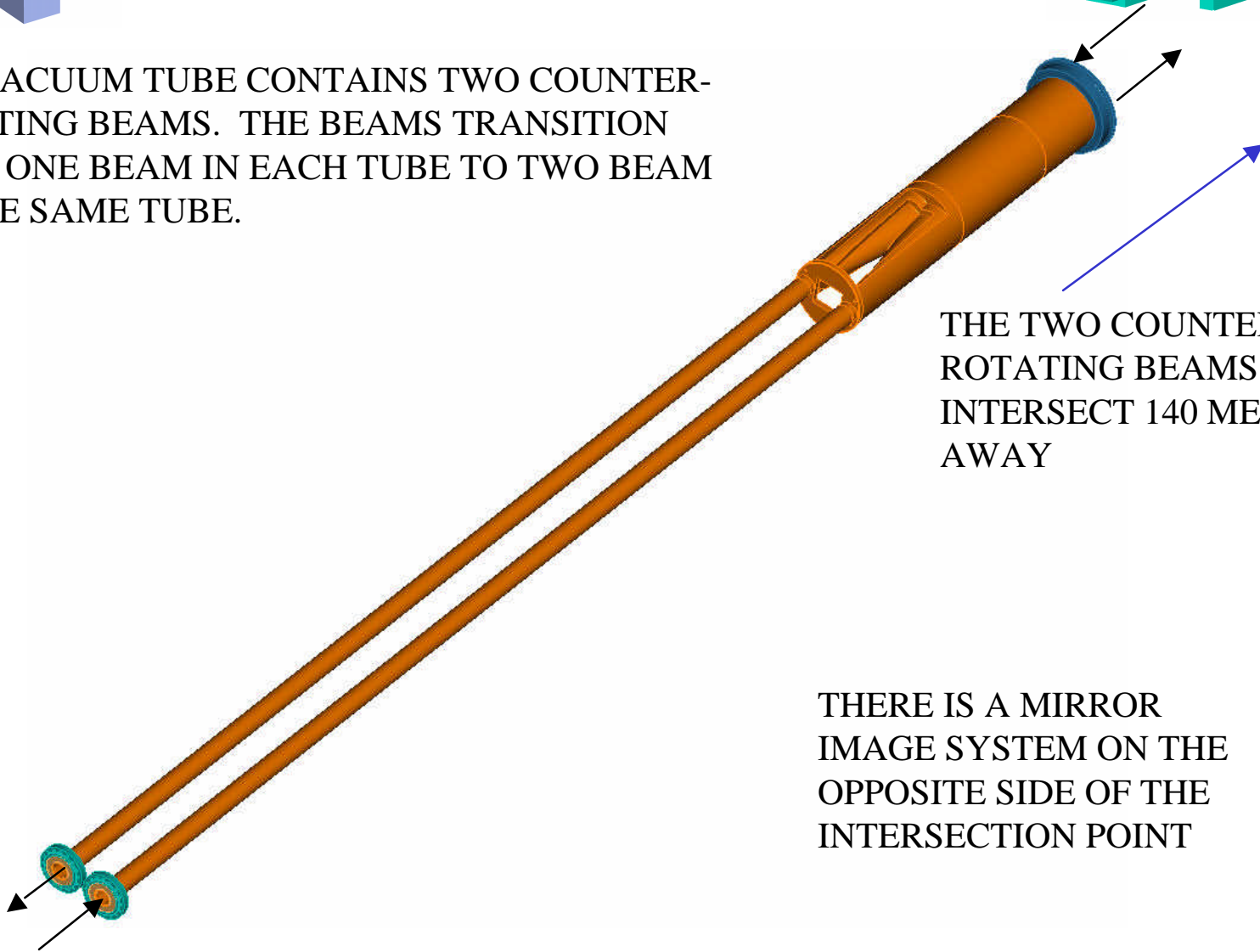
## TAN VACUUM DESIGN -3D OVERVIEW

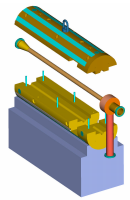
THE VACUUM TUBE CONTAINS TWO COUNTER-ROTATING BEAMS. THE BEAMS TRANSITION FROM ONE BEAM IN EACH TUBE TO TWO BEAM IN THE SAME TUBE.



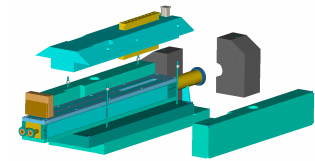
THE TWO COUNTER-ROTATING BEAMS INTERSECT 140 METERS AWAY

THERE IS A MIRROR IMAGE SYSTEM ON THE OPPOSITE SIDE OF THE INTERSECTION POINT

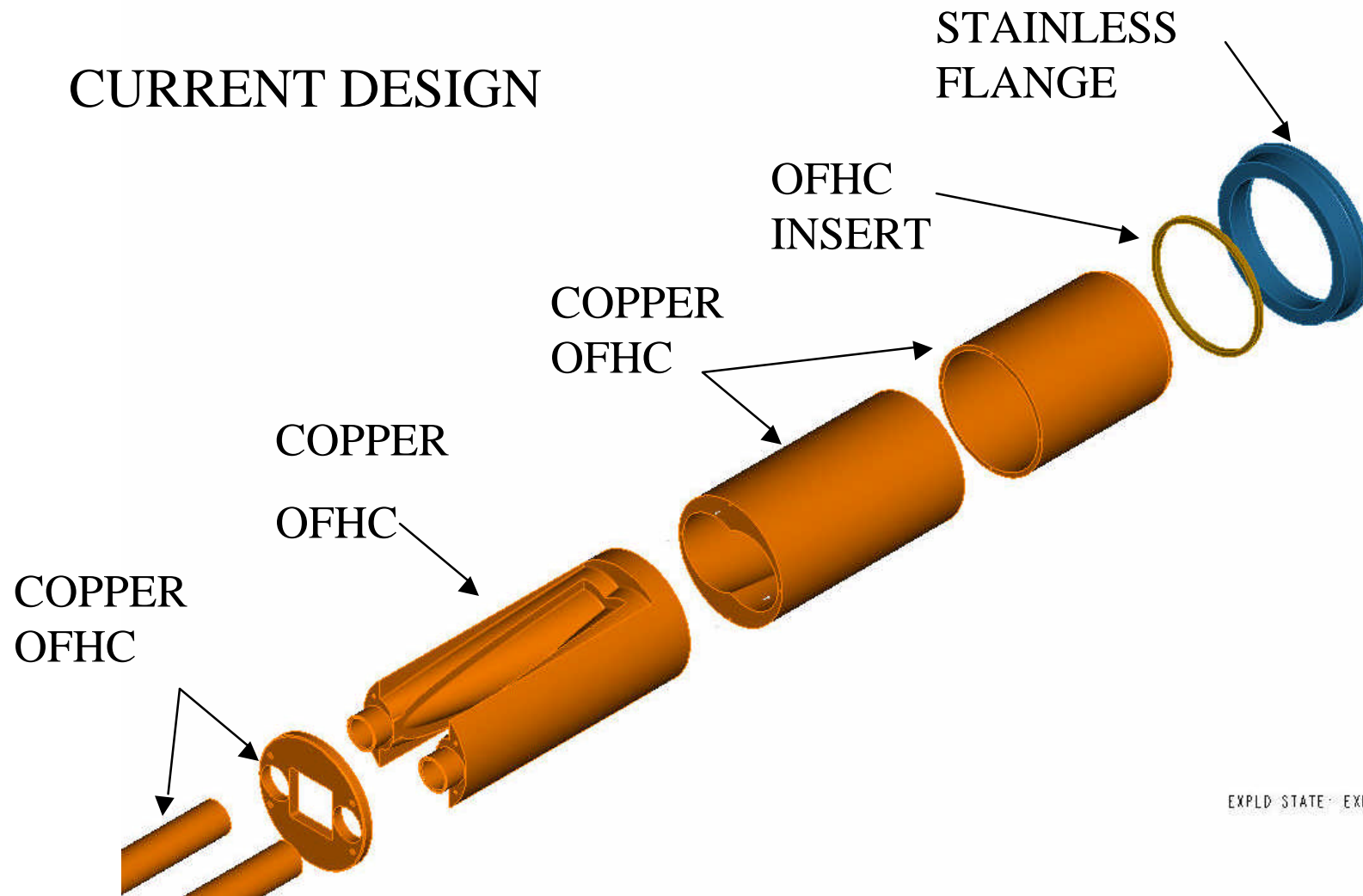




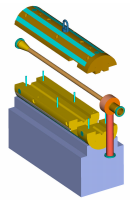
# TAN VACUUM DESIGN -MATERIALS



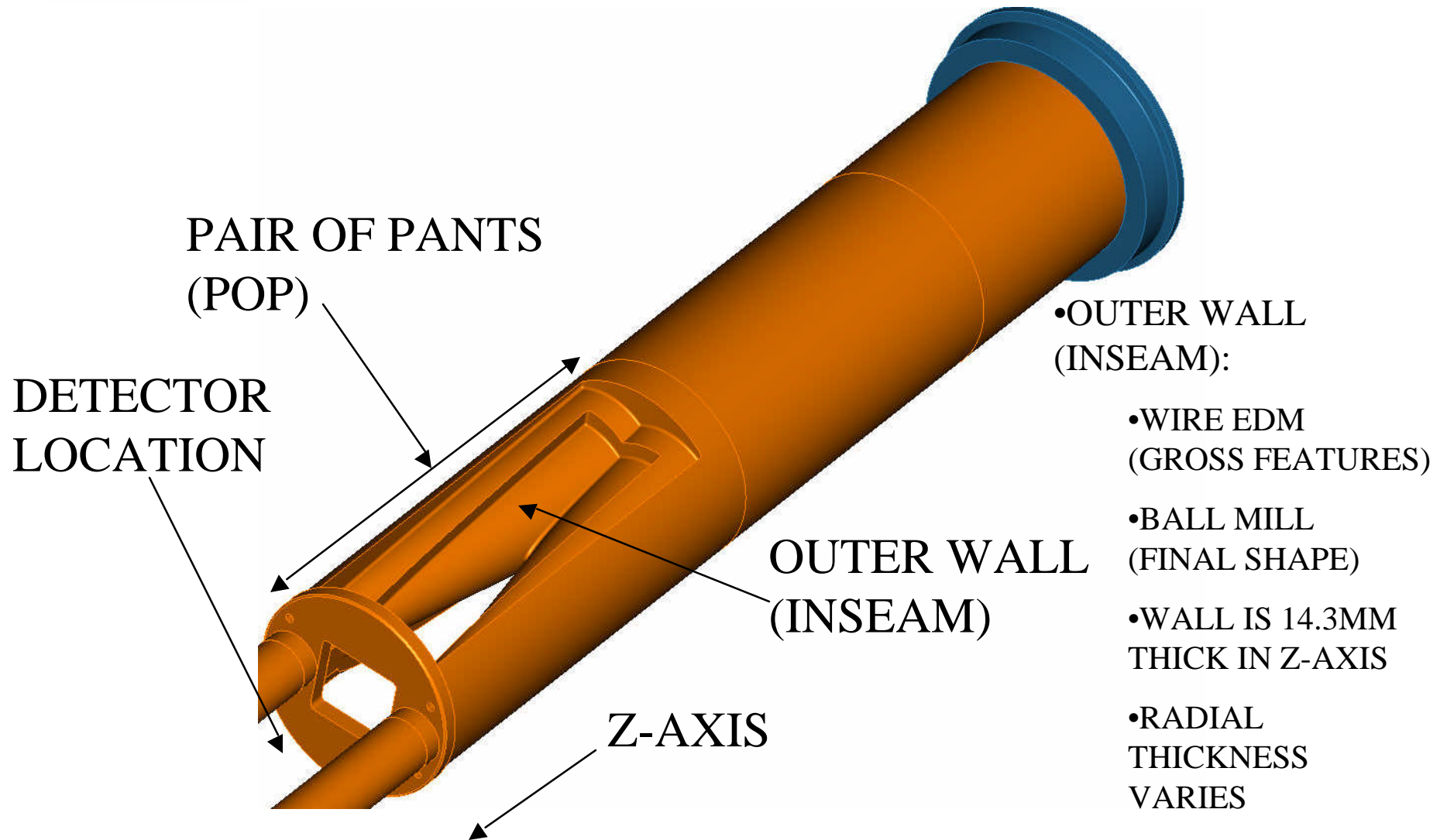
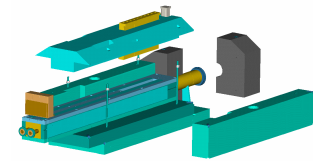
CURRENT DESIGN



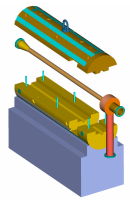
EXPLD STATE: EXP0001



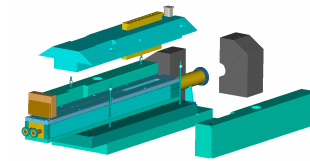
## TAN VACUUM DESIGN -OUTER WALL





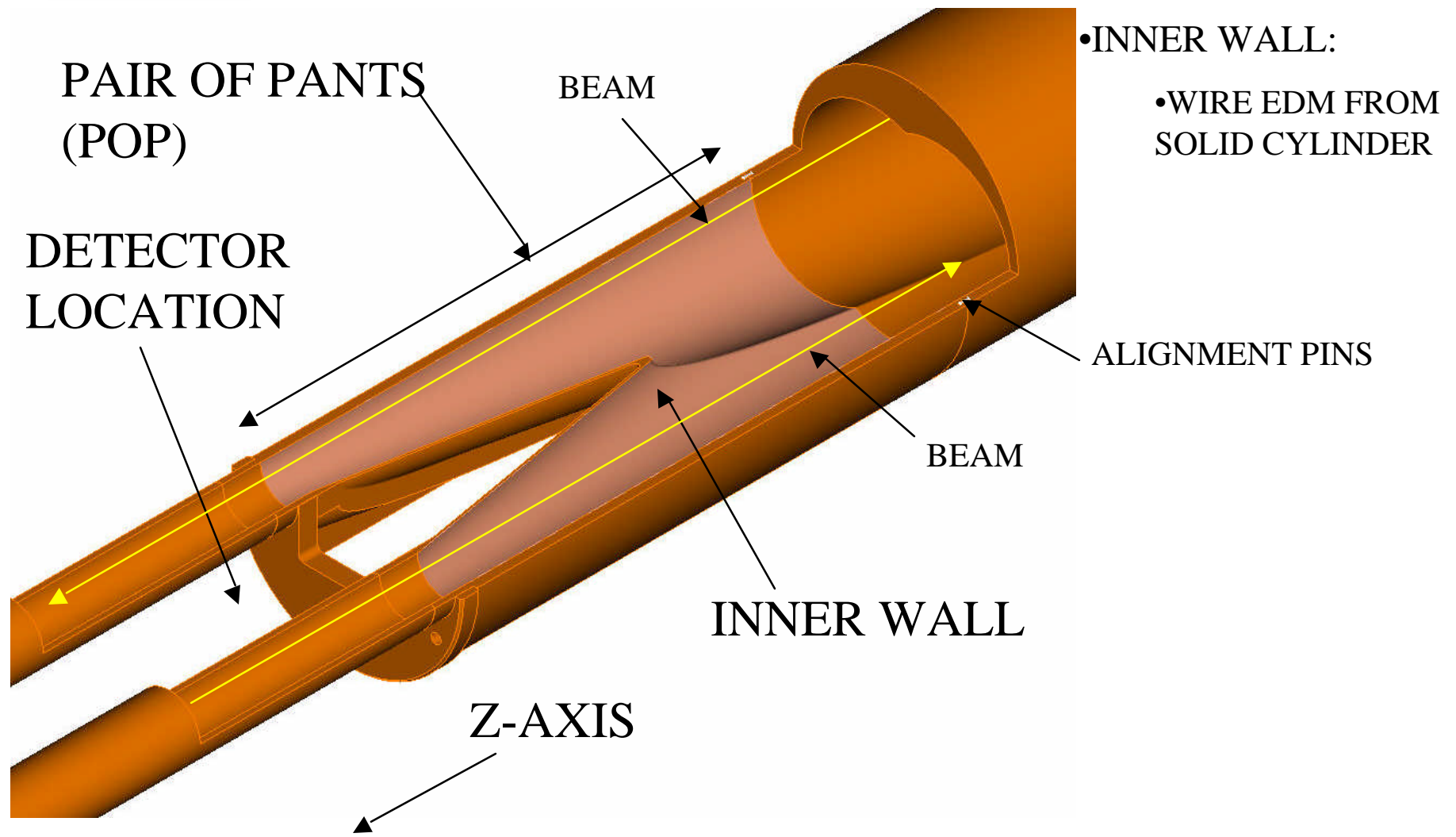


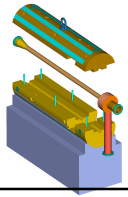
## TAN VACUUM DESIGN -INNER WALL



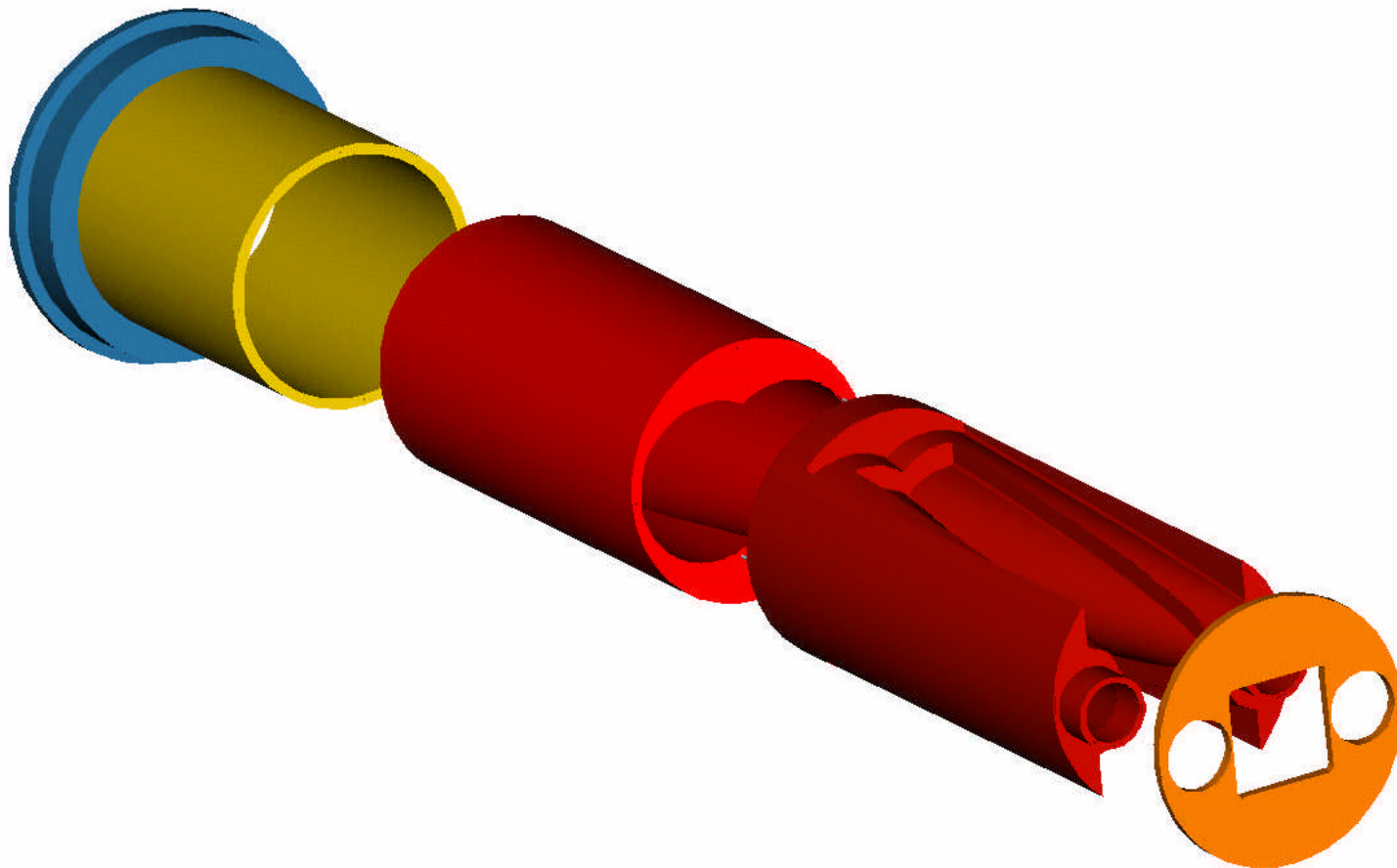
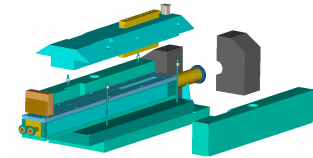
•INNER WALL:

•WIRE EDM FROM  
SOLID CYLINDER

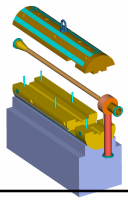




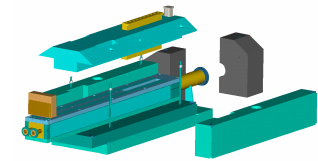
# Vacuum Chamber Assembly







# Absorber Box Assembly



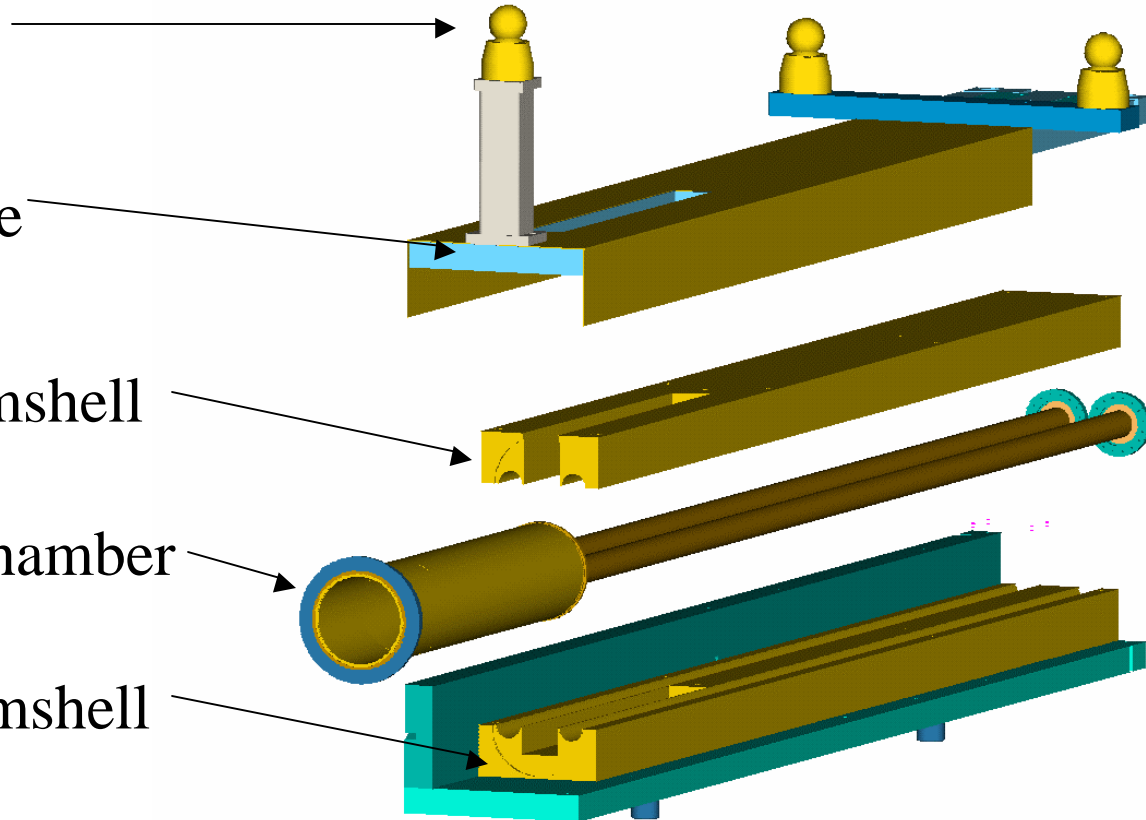
Fiducials

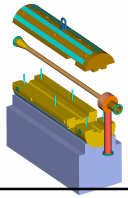
Upper plate

Upper clamshell

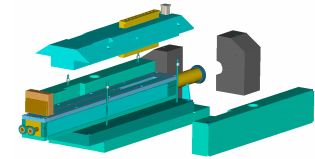
Vacuum chamber

Lower clamshell

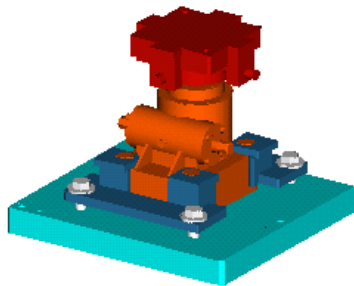
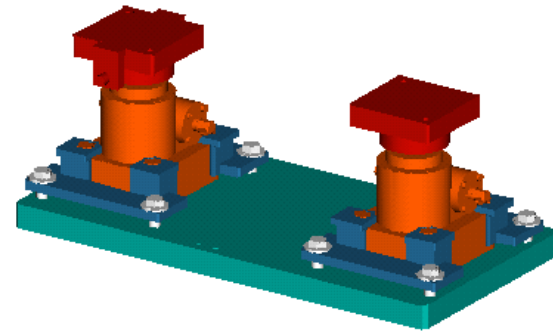


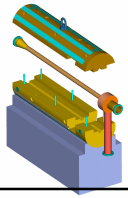


## TAN Jack Installation

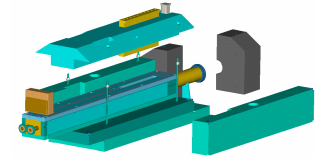


- Survey location
- Install jack plates
- Install jacks  
(Note jack clips)
- Adjust jacks

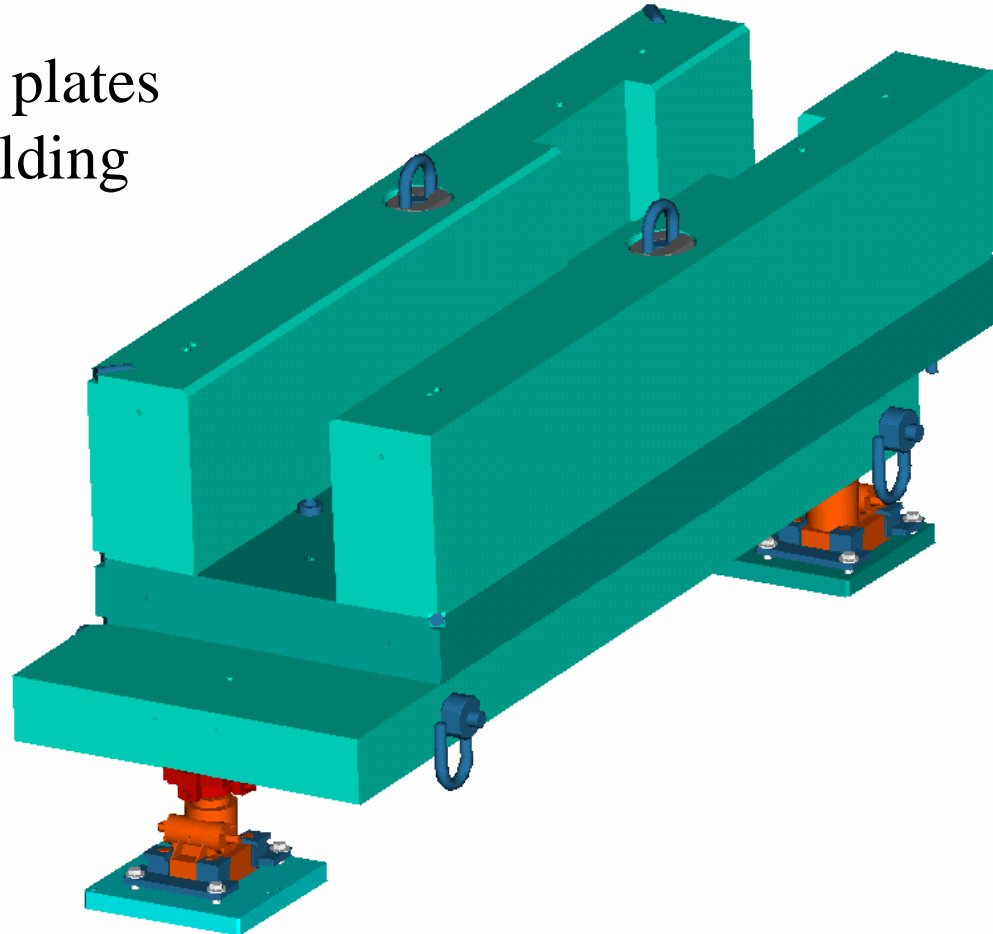


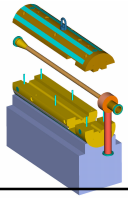


## TAN Lower and Side Shielding

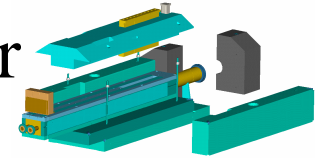


- Install base plates and side shielding

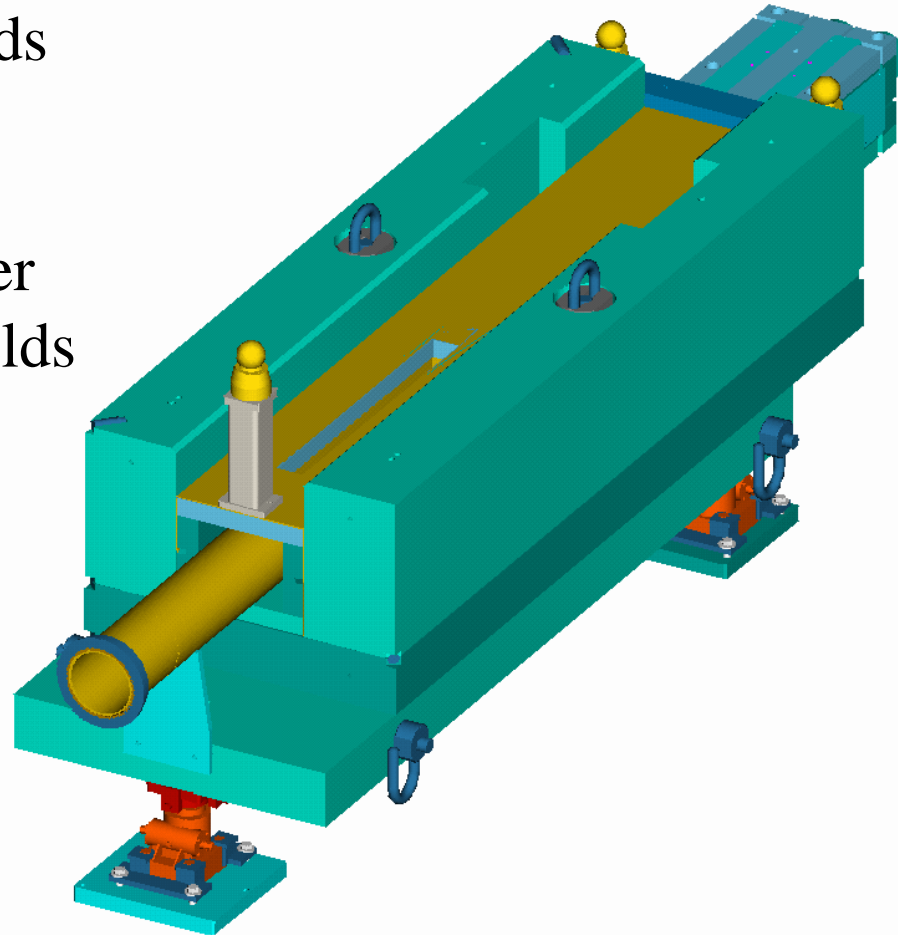


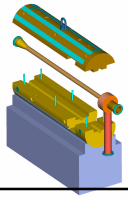


## TAN Lower Shielding and Absorber

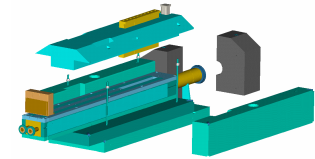


- Install heat shields
- Install absorber
- Use shims to centralize absorber between side shields

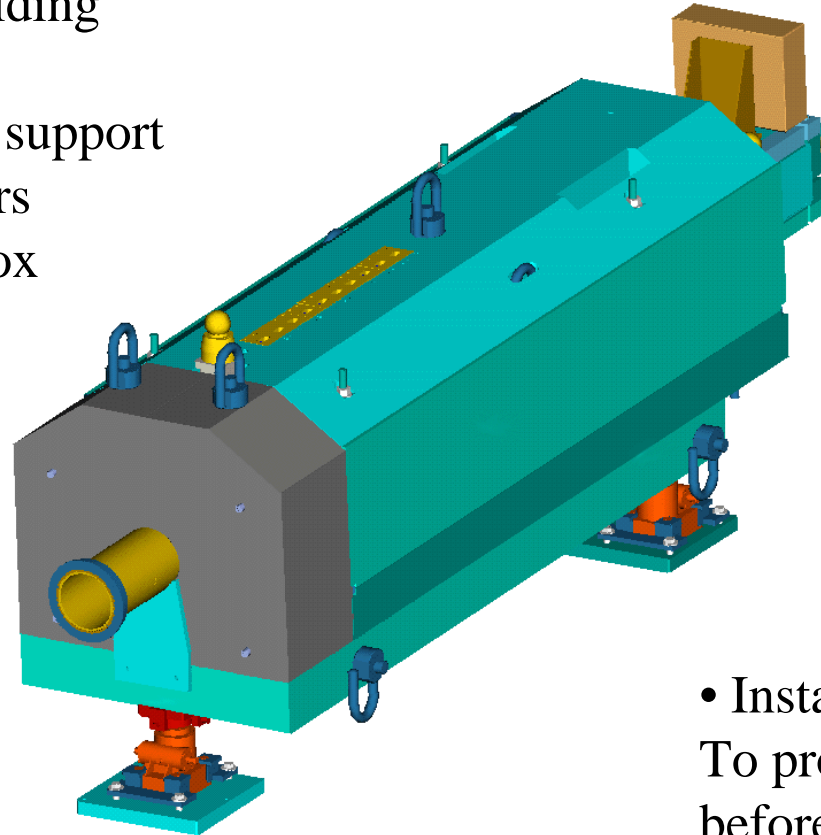




## TAN Assembled



- Install upper shielding
- Assemble marble
- Install beam tube support
- Install copper bars
- Install junction box
- Fiducialization



- Install transport covers  
To protect beam tubes  
before moving assembly